

CLAIMS

1. A balloon stent assembly system comprising:  
a balloon including an outer layer portion; and  
a stent disposed on the balloon, the stent covering at least 55 percent of the outer layer portion;  
wherein the outer layer portion flows into gaps formed in the stent when the balloon stent assembly is heated to a predetermined temperature, and retains the stent on the balloon during intravascular movement.
2. The system of claim 1 wherein the predetermined temperature comprises a temperature range of about 50 to 70 degrees Celsius.
3. The system of claim 1 wherein the balloon comprises at least one outer layer and at least one inner layer, the outer layer portion comprising the outer layer.
4. The system of claim 3 wherein the outer layer and the inner layer comprise a co-extruded laminate.
5. The system of claim 3 wherein the outer layer comprises a tie layer material.
6. The system of claim 3 wherein the outer layer comprises a functionalized material.
7. The system of claim 6 wherein the functionalized material comprises at least one material selected from a group consisting of: polyethylene, ethylene-vinyl-acetate, acrylate, Bynel<sup>®</sup>, and Plexar<sup>®</sup>.
8. The system of claim 6 wherein the functionalized material is not tacky at temperatures below the predetermined temperature.

9. A balloon stent assembly system comprising;  
a balloon including at least one non-tacky outer layer and at least one inner layer;  
and  
a stent disposed on an outer layer portion;  
wherein when the balloon is heated at a predetermined temperature an outer layer  
portion flows into gaps formed in the stent while the inner layer does not flow.
10. The system of claim 9 wherein the stent covers at least 55 percent of the outer  
layer portion.
11. The system of claim 10 wherein the balloon provides at least 200 gram force of a  
stent retention force.
12. The system of claim 9 wherein the stent covers at least 70 percent of the outer  
layer portion.
13. The system of claim 12 wherein the balloon provides at least 300 gram force of a  
stent retention force.
14. The system of claim 9 wherein the stent covers at least 90 percent of the outer  
layer portion.
15. The system of claim 14 wherein the balloon provides at least 90 gram force of a  
stent retention force.
16. The system of claim 9 wherein the predetermined temperature comprises a  
temperatures range of about 50 to 70 degrees Celsius.
17. The system of claim 9 wherein the outer layer and the inner layer comprise a co-  
extruded laminate.

18. The system of claim 9 wherein the outer layer comprises a tie layer material.
19. The system of claim 9 wherein the outer layer comprises a first material and the inner layer comprises a second material different from the first material.
20. The system of claim 19 wherein the first material comprises polyethylene.
21. The system of claim 19 wherein the first material is not tacky at temperatures below the predetermined temperature.
22. A method of retaining a stent on a balloon comprising:  
mounting the stent onto the balloon, the stent including gaps, the stent covering at least 55 percent of the balloon;  
sheathing the mounted stent and balloon;  
heating the balloon; and  
flowing an outer layer of the balloon into the gaps formed in the stent while an inner layer of the balloon does not flow.
23. The method of claim 22 wherein heating the balloon comprises elevating the balloon temperature to a temperature of about 50 to 70 degrees Celsius.
24. The method of claim 22 wherein the outer layer flows into a predetermined gap arrangement.
25. The method of claim 22 wherein the outer layer flows into a random gap arrangement.
26. The method of claim 22 further comprising pressurizing the balloon.
27. A balloon comprising:

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a outer layer means for flowing into gaps formed between struts on a stent; and  
an inner layer means for supporting the outer layer means.

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